

# NATURALLY KENTUCKY

Number 8, July/August

## COMMISSION CONDUCTS RARE SPECIES INVENTORY AT FORT KNOX

By Deborah White and Brainard Palmer-Ball

The 1991 Defense Appropriations Bill established the Legacy Resources Management Program, which is meant to identify and manage all significant biological, cultural, geophysical, and historical resources existing on or involving Department of Defense lands. Through this program the Department of the Army worked out an agreement with the Commission to conduct a survey for threatened and endangered species on the Fort Knox Military Reservation. In early spring of 1992, the final contract was signed, enabling the Commission to initiate a two-year inventory of the base. Although the artillery impact areas were excluded from the scope of work, Commission biologists have had plenty to do in the remaining approximately 66,000 acres.

Fort Knox lies within portions of Hardin, Meade, and Bullitt counties in central Kentucky. Within its 109,000 acres there is a great diversity of natural communities. The Muldraugh's Hill is the major physiographic feature, bisecting the base in a southeast to northwest direction. To the south and west are rolling, karst uplands of the Mississippian Plateau or Pennyroyal. Slopes associated with the escarpment itself are steep and dominated by rich, mesic forests. The Salt and Rolling Fork rivers join on Fort Knox near the eastern edge of Muldraugh's Hill, having originated in the Bluegrass to the east. Rising out of the floodplains of these two rivers are small clusters of sandstone-capped knobs characteristic of the Outer Bluegrass. The Salt River then flows westward through the base, emptying into the Ohio River, which forms its northern boundary for several miles. Within the floodplains of the Salt and Ohio rivers, are several relatively intact tracts

of bottomland hardwood forest.

As Commission biologists enter into a second field season at Fort Knox, a number of noteworthy finds already have been recorded. Surveys for bats yielded captures of the federally endangered Gray bat at three locations along Otter Creek, which flows through the western portion of the base. Caves on Fort Knox harbor several KSNPC-monitored species including populations of a cave crayfish (*Orconectes inermis*), Northern cavefish (*Amblyopsis spelaea*), and Northern long-eared bats (*Myotis septentrionalis*). Several records of the uncommon Pygmy shrew (*Sorex hoyi winnemana*) have resulted from small mammal trapping.

Training areas on the western side of the base harbor the state's largest population of the Northern gray treefrog (*Hyla versicolor* -- KSNPC Special Concern). Considerable numbers of this small amphibian breed in temporary ponds and pools over a relatively large area.

One of the most intriguing natural communities for botanical work at Fort Knox is a complex of limestone slope glades and xeric woodlands. The exposure of the limestone bedrock where these unique systems have developed is a result of a natural erosion pattern that has occurred over many years. A characteristic flora that has many plant species in common with prairies has developed on these rock outcrops. Several KSNPC-listed species including the Glade violet (*Viola egglesonii*), Great Plains ladies'-tresses (*Spiranthes magnicamporum*), and Side-oats grama (*Bouteloua curtipendula*) were found on various glade openings throughout this system.

(FT. KNOX cont.)

Other rare plant finds on the base have included Compass plant (*Silphium laciniatum*) and Blue mud-plantain (*Heteranthera limosa*). Commission biologists are also in the process of identifying the best remaining natural forest communities at Fort Knox and will finalize a list of the highest quality sites in this field season.

Interaction with Fort Knox's natural resources staff during the inventory has been very positive. The inventory's coordinator for the Army, Gail Pollock, has already initiated follow-up projects to protect and manage the rare species and communities that Commission biologists have located. For example, soon after being notified about the glade communities, Fort Knox requested that the Commission develop a management plan for the entire complex of glades to protect these botanically rich areas and the rare plants associated with them. Likewise, wildlife managers Don Sheroan and Mike Brandenburg quickly rectified a problem with a gate that was excluding bats from entering a cave that formerly harbored a colony of Gray bats. A new fence is already in place, and a sign has been erected, notifying everyone that the cave is closed to protect the rare bats. Plans are also underway to study possible solutions to siltation in the cave from above-ground training areas.

Field studies at Fort Knox will be finalized this fall, but the survey has laid the groundwork for continued cooperation with the natural resources staff at Fort Knox to protect important areas and develop management practices that are compatible with training activities there.

### Nature Preserves Six-Year Capital Plan

By Robert McCance, Jr., Director

KSNPC has received a strong endorsement by Natural Resources and Environmental Protection Cabinet (NREPC) Secretary Phillip J. Shepherd in the state's six-year capital budget. NREPC has listed KSNPC's land acquisition needs as a very high priority for the cabinet. In state fiscal year 1995, the request is for \$3,070,000 for KSNPC; for FY 96, \$1,112,000; for FY 97, \$1,155,000; and for FY 98, \$1,200,000. Priority ranking among all cabinet activities places our needs as #3 in 1995, and #1 in 1996-98. By comparison, last biennium's six year capital plan requested \$1,040,000 each year and ranked 9th, 6th, 8th and 4th in each year's list of priorities. Of course, this request does not mean we will get the money - even though \$1,040,000 was requested each year for the 1993-94 Biennium, we received \$161,000 and \$100,000 in those two years. It is, however, a very good start in the process of acquiring land acquisition monies so that KSNPC can protect our finest natural areas as state nature preserves.

### New Grants

By Robert McCance, Jr.

KSNPC has acquired three new grants since March. The Kentucky Department for Surface Mining Reclamation and Enforcement has extended our work with them to fiscal year 1994 for an additional \$103,633. We will continue to collect the biological data they need to review coal mining permit applications. Bluegrass Army Depot is extending our work in the base by at least two years to continue studies and protection planning for a federally endangered plant. \$30,000 has been allocated to this work and more may be available later. The Tennessee Chapter of The Nature Conservancy has subcontracted to us for \$33,800 over two years for rare plant work on the Kentucky portion of Ft. Campbell. Grants continue to be a critical component of KSNPC work.

### KENTUCKY BREEDING BIRD ATLAS UPDATE

By Brainard Palmer-Ball

Field work for the Kentucky Breeding Bird Atlas, a cooperative project involving KSNPC, the Kentucky Department of Fish and Wildlife Resources' Nongame Wildlife Program and the Kentucky Ornithological Society, was completed late in 1991. More than 150 individuals participated in the seven-year project, most on a voluntary basis. This systematic inventory of Kentucky's breeding birds resulted in the accumulation of more than 42,000 observations involving 158 species. Of this total, 146 species were confirmed breeding within the state.

Since completion of the field work, the data have been processed, and writing has been underway. By early 1993, the first draft had been completed, and various individuals are now reviewing the manuscript. Although summer field work has stalled progress temporarily, it is hoped that a final draft will be completed this fall with publication of *The Kentucky Breeding Bird Atlas* over the coming winter.

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### DID YOU KNOW.....

The American Bittern (*Botaurus lentiginosus*, KSNPC Endangered) is seen occasionally during spring and fall migration, but it has not been reported nesting in Kentucky since the mid-1940s. This unusual waterbird typically inhabits marshes and the marshy borders of lakes and ponds. It is especially fond of cattails, but is sometimes found in other types of wetland vegetation. Nesting birds are somewhat secretive, but persistent study of appropriate habitat should yield evidence of their presence. American Bitterns might be found nesting just about anywhere in Kentucky, but they are most likely in the western third of the state.

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# Pilot Knob State Nature Preserve

by Kris Snyder

"...On the seventh day of June we found ourselves on Red River...and from the top of an eminence, saw with pleasure the beautiful level of Kentucke"

(from Daniel Boone's "Autobiography" in the appendix of John Filson's "Discovery and Settlement and Present State of Kentucke" published in 1784).

Rising above the surrounding landscape, the 730-foot high knob provides an expansive view of three regions of Kentucky: the Bluegrass, the Knobs, and the Cumberland Plateau. Certainly, Daniel Boone and his party must have had a wonderful view of central Kentucky on their initial visit to this part of the country.

What was historically known as "Pilot Knob" is located northwest of Clay City four road miles off of the Bert T. Combs Mountain Parkway and about one hour's drive from Lexington. The knob and additional acreage were first purchased in 1976 by the The Kentucky Chapter of The Nature Conservancy. The Division of Natural Areas at Eastern Kentucky University managed the preserve and used it for ecological research and environmental education. In 1985, the Kentucky State Nature Preserves Commission purchased the 308-acre property, creating Kentucky's 15th state nature preserve. The preserve is now jointly managed by the Commission and the Division of Natural Areas at Eastern Kentucky University.

As a central part of Pilot Knob State Nature Preserve, the knob itself is a product of significant geological processes which have occurred over the past 200 million years. The lower two-third's of the knob is made primarily of claystones, siltstones and sandstones. After these layers were deposited, a river that flowed through Powell County millions of years ago deposited sand and gravel, forming what is called the conglomerate layer. Conglomerate is a sandstone made of rounded quartz pebbles, sand, and gravel from an ancient river bed. Such unique geology has produced suitable habitats for a wide range of plant species and vegetation. There are three



different forest communities in the preserve that can be seen from the knob: the oak-hickory forest, mixed mesophytic forest and pine-oak-heath forest.

Another focal point in Pilot Knob's history was millstone quarrying. Because of the special geological composition of the knob, boulders that rolled off the top of the knob could be split and shaped into millstones for grinding grain and other materials. According to historical records, millstone makers began working in the Pilot Knob area by the 1790s and continued their work until the mid to late 1800s. Little is known about the men who made the millstones but the remains scattered across the knob's southwestern slope provide some clues as to how they went about their work.

Visitors can learn about the millstone-making process on a 0.5 mile self-guided trail located 0.25 miles from the parking lot. A brochure, available at the trailhead, provides the history and detailed drawings of how millstones were made. Seven stages of millstone production are represented on the trail and described in the brochure.

A hike on the Millstone Quarry Trail may be a welcomed alternative to the challenging, 1.5 mile hike on the Knob Trail to the summit. This trip is considered strenuous, and visitors are advised to stay on the trail, which provides the easiest and safest way to the top. A self-guided nature trail brochure, describing the history, geology and biology of the preserve, is also available for the Knob Trail. As you pick up the brochure, please sign in on the visitor registry, and let us know what you thought as you leave. We hope that you, too, will be able to view "with pleasure the beautiful level of Kentucke"!

## ***Stewardship - More Than Meets The Eye***

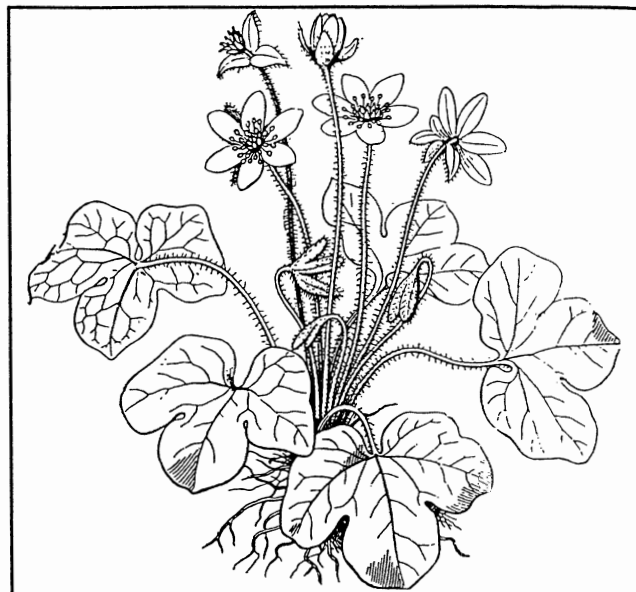
by Joyce Bender

Standing near the refreshing spray of Bad Branch Falls, enjoying the cool mist and the reflection of the sunshine on the cascading water droplets, I have to admit my job is a good one. Once, in response to a question about what my job entailed, I jokingly mentioned that I had to make sure the waterfalls kept falling and the flowers continued to bloom each year. While leading groups on field trips or talking to people admiring our Commission display at some exhibit, I've had people say "I'd love to have your job." I always smile in response; sometimes happily, sometimes wistfully. As much as I love my job and can't think of anything I'd rather do, there are days when I'd like to respond, "Here, please take it."

These folks get to see the nature preserves and me on our best days. As with everything in life, there's another side to this story. Before the trails are built and the informative signs are placed, there's a "behind the scenes" feel to our preserves that few visitors get to see. There is also a "behind the desk" look for me--harried and covered up with paper.

It takes an incredible amount of effort to maintain our thirty-one nature preserves. My staff and I spend a lot of time just travelling across the state to all of them to do routine inspections. Upon arrival, visits are hardly ever routine. There's a trash dump in the parking lot, someone has bulldozed our line trees, hog carcasses have mysteriously shown up on our side of the boundary with our farmer neighbor, the trail markers have been vandalized, someone drove an ORV through the creek.

Planned activities like posting the boundaries sound simple enough until you follow the surveyor's paint blazes to the edge of a cliff and then have to figure out how to get down without falling or dropping your bag of signs, nails, and the hammer. Building a trail requires more than clearing a path through the woods. The trail has to be routed so that rare species habitat will not be damaged by the construction or by visitors later on who might pick a rare plant or disturb an endangered animal while it is nesting. The trail grade can't be too steep for the visitors to climb. The soil's erosion potential must be considered when routing across a slope. In addition, the trail must be inviting and offer good opportunities for



interpreting natural features.

Burning a prairie is not throwing down a lit match and watching the flames rise. Ecological objectives for the preserve must first be determined by working with Heritage botanists and other knowledgeable people. The area must be divided into units of manageable size. Fire breaks have to be constructed to contain the fire's spread. Some areas must be left unburned so that insects and animals displaced by the fire will still have food and cover. A crew has to be trained and kept on standby as you wait for the right weather conditions. Neighbors need to know what is planned and what to expect. The Division of Forestry and local volunteer fire departments are invited to assist. Even after the fire is out and the smoke clears, there is more to do. Throughout the growing season, follow-up visits to observe the vegetation are made to evaluate the burn's success.

I **am** responsible for making sure the waterfalls still fall and the flowers continue to bloom. The Commission has wisely invested the taxpayers' dollars in a remarkable system of natural areas that represent Kentucky's immense wealth of biodiversity. We do not take this trust lightly. Many of our rare plant species would stop blooming if we did not manage their habitats appropriately. To ensure that waterfalls keep falling, we try to protect the entire watershed. I am not alone in carrying this responsibility. My staff and all of our volunteers have signed on to help with this heavy burden. And I remember that every time I come back from the field to face the mound of paper on my desk.



**NATURAL AREAS REGISTRY**  
**PROGRAM: AN UPDATE**  
by Landon E. McKinney

The summer months bring about our usual intense field season as we search for unique natural communities, rare plants, and animals, and satisfy our contractual commitments. For me, the summer months also bring about contact with many of the landowners involved with our Natural Areas Registry Program. While time limitations do not allow me to actually visit each one of our landowners, every attempt is made to at least contact each by phone. A visit to the natural areas involved is planned at least on a biennial basis.

Our registry program continues to protect many of the most important natural communities in the state. One of my favorites continues to be an area called Floyd Woods in McLean County. Out of a sincere respect for natural communities and a need to save something for future generations, Mr. James A. Floyd chose to set aside a small patch of bottomland hardwood forest. Located well within the broad Green River floodplain west of Calhoun, Kentucky, Floyd Woods is one of the most impressive old-growth forests left in the state. To walk through Floyd Woods is to truly take a step back in time to when the vast floodplains of western Kentucky were covered with towering forests dominated by oaks, hickory, and ash. Floyd woods is dominated by a variety of oaks such as swamp chestnut, overcup, and cherrybark. Many of these reach up to four feet across.

I find my visits to Floyd Woods to be an inspirational experience. As I walk between the towering oaks, I can almost envision walking in the footprints of some of our earliest Native Americans, native peoples of the Woodland Period (1000 B.C. to A.D. 1000). Their past inhabitation of the area is attested to by a large burial mound in the vicinity. Floyd Woods is truly reminiscent of the way it was as these native peoples hunted small game and gathered fruits and nuts.

With each visit I find some new discovery as I continue to document the plant life growing there. This year, Aaron Jamison (one of our summer co-op students) and I came across a delicate little member of the carrot family called *Trepocarpus*. The small herb, with tiny white flowers and leathery leaves, is rare in Kentucky and previously only known from the extreme western portion of

the state.

Part of the summer is spent establishing new registered natural areas. Landowners have been contacted about unique natural communities in Adair, Caldwell, and Todd counties. Other natural communities are being surveyed to further document their importance and potential inclusion in our registry program.

All in all, occasional visits to our registered natural areas and yearly contact with the many landowners involved in the program continues to be one of the highlights of my many responsibilities.

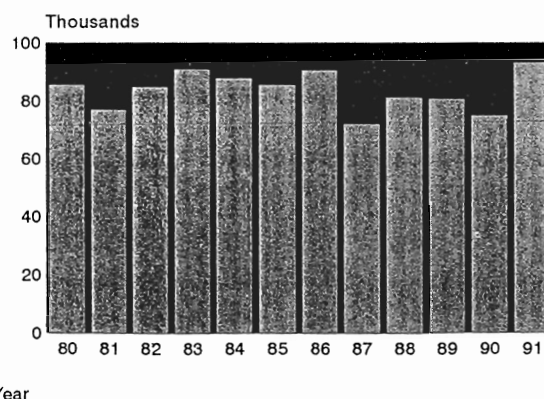
**Status Of The Nongame Wildlife/Natural Areas Fund**

By Linda Pollock

Kentucky income tax returns are very important to the Kentucky State Nature Preserves Commission (KSNPC) and to the Kentucky Department of Fish and Wildlife Resources (KDFWR). It is from individual tax returns that our agencies receive donations to the Nongame Wildlife/Natural Areas Fund (NW/NAF). These donations help to fund stewardship, land acquisition, and nongame wildlife programs. Both agencies continually look for new and better ways to promote the checkoff fund.

The NW/NAF checkoff has not received much support when compared to similar checkoffs in other states. In Tax Year 1990 Kentucky's checkoff income was \$74,811, compared to Indiana's \$375,985, and Ohio's \$1,268,584. This is not due to lack of interest by Kentuckians but rather to inadequate promotion of the fund.

**Kentucky Nongame/Natural Areas**  
Checkoff Fund



Tax Year

**(CHECKOFF cont.)**

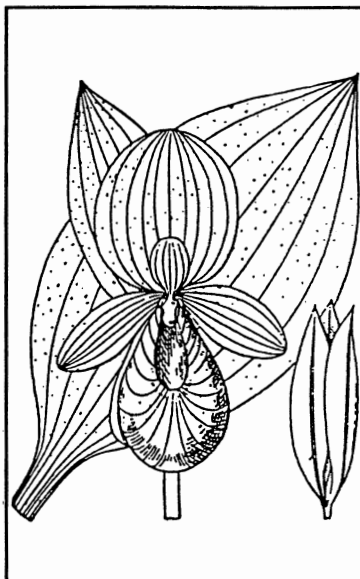
New promotion strategies were adopted in Tax Year 1991. Checkoff income is the best measure of success. Tax Year '91 was the most successful one to date with checkoff income exceeding \$94,000. There are over 1 million Kentuckians who are eligible to donate to the NW/NAF checkoff. KSNPC and KDFWR hope to reach them in the coming tax year with a more focused promotional campaign. As of June 1, \$70,776.70 have been donated to this year's checkoff.

**DID YOU KNOW.....**

Showy Lady's Slipper  
(*Cypripedium reginae*)

This spectacular orchid was seen near Corbin, Kentucky in 1888 and has never been seen in Kentucky since. The plant flowers in June and July and often reaches a height of three feet. The flower is mostly white but has a deep pink lip. Potential sites for the species are limestone seeps along the Cumberland River, the Big South Fork and the Little South Fork and their tributaries. Imagine how exciting it would be to relocate a plant population that hasn't been seen in more than 100 years!

The Kentucky State Nature  
Preserves Commission is  
mandated to identify and  
preserve remnants of  
Kentucky's natural heritage  
in a statewide system of  
nature preserves.



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**NOTE TO OUR READERS:**

We believe that information about KSNPC activities is very important to you and to us. We have increased the number of newsletters, and hope to maintain a bimonthly schedule.



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